

### REMARKS/ARGUMENTS

Reconsideration of this application is requested. All previous claims have been cancelled and replaced with a new set of claims 70 - 79 all directed to animal feeds. Claims 70 - 72 are independent claims.

All of the previous claims were rejected based on the newly cited Asami reference, US 6,265,450, applied by itself or in combination with secondary references. These rejections are all traversed as they do not pertain to the subject matter of the above new claims. The Asami reference is addressed in the remarks that follow.

The Asami reference discloses a **human** anti-stress composition comprising astaxanthin. By contrast, the above claims are directed to using the composition to enrich a non human animal feed. In this art and as used in the present claims, the term animal feed excludes humans so applicant is not adding matter by excluding humans. Animal feeds are for animals -- no one regards animal feeds as suitable for human consumption. In fact, food regarded as unsuitable for human consumption is often turned into animal feed.

As preferred embodiments are animal feeds that are based on fish, a crustacean, polychetes or insects (*see* claim 71). The composition of the invention can therefore be used to enrich fish meal or shrimp which are fed to aquarium fish or to enrich locusts which are feed to reptiles.

Preferred enriched feeds are based on live aquatic feeds (*see* claim 72). Fish are often feed a diet of live organisms such as krill. Applicant's invention enriches these live organisms with the specified composition to provide an ideal fish diet.

- Applicant is also able to enrich some dead feeds with the composition. In the examples frozen brineshrimp, mysis and krill are enriched. Applicant also claims a feed formed from crustaceans enriched with the claimed composition (*see* dependent claim 73).

The possibility of the feed being a micelle is mentioned in dependent claims 74, 76 and 78 and this is very important. For a feed to an aquatic organism, these micellular feeds can be absorbed readily because of the nanoparticulate nature of the emulsion particles. These feeds need to pass across the mucous membrane of the fish and applicant's research suggests that this is achieved by using very small emulsion particles. Simply using astaxanthin in solution does not make it bioavailable. While emulsions are mentioned in Asami, this is simply one way of

formulating astaxanthin. There is no issue with bioavailability in humans as we eat the product. In aquatic organisms there is a major bioavailability issue which is solved by the use of micelles. Asami does not teach this.

The nature of the astaxanthin used is also very important. It is especially preferred to use astaxanthin in the form oleoresin (*see* page 7, line 13 and the example). This form of astaxanthin has been found to give the best results in terms of activity and is featured in dependent claims 75, 77 and 79.

Asami describes anti-stress compositions. These are exclusively for human use so Asami does not describe animal feeds. The claims are therefore new. Moreover, Asami does not describe fish, crustacean, polychete or insect based animal feeds.

No one reading Asami would consider using an astaxanthin emulsion in an animal feed based on Asami. Asami's invention is about alleviating the stress of modern day life, stresses which are linked only to humans not animals. Asami suggests that the composition he proposes can be ingested as part of a beverage or food as this is a standard way of taking in a pharmaceutical preparation. Asami does not describe an animal feed enriched with a composition and cannot be considered relevant to that disclosure.

There is absolutely no suggestion whatsoever to enrich an animal feed such as one formed from fish, crustaceans, polychetes or insects with the composition of the invention. This claim is clearly distinguished over Asami.

Note also that the animal feed in this invention is primarily for fish and reptiles. These organisms have a completely different physiology than humans. They have different cell types and immune systems and no comparison whatsoever can be made between a human being and a fish or reptile. This means Asami is far removed from what is now claimed.

Basis for limiting to non human animal feed is in line 1 of the patent. Line 7 mentions pets, zoo animals and farm animals so it is clear that the intention is to cover non human animal feeds.

Basis for incorporating the composition into a particular feed can be found on page 14 where fish, crustaceans, polychetes and insects are mentioned. Basis for enriching a live aquatic feed can be found on page 16, lines 6-9. Enrichment of crustaceans is based on page 14, line 24. Mysis, krill, artemia, brineshrimp and copepods are all crustaceans.

GEACH

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For the above reasons it is respectfully submitting all pending claims are directed to novel and inventive subject matter. Reconsideration and allowance are solicited. Should the examiner require further information please contact the undersigned.

Respectfully submitted,

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